

SOUND WAVES

VRPS Fall 2015



From the President

We have passed the halfway point in 2015, and several things are note worthy as I type this article for the Sound-Waves. Our organization, having passed 40 years since a group of visionary collectors met in the fall of 1974, has continued to be strong and to add new members. You can see evidence of this at our regular monthly meetings where we are averaging 30+ in attendance.

The interesting thing about those attending is that folks are coming from all over the metroplex and even outside the metroplex. That is exciting because it means our programs are interesting enough to draw folks who have to drive quite a distance to attend a 2 or 3 hour meeting. I give a lot of credit to our director of meeting programs, past and current. Mike Grimes led the charge for many years and set the stage for our current director, Larry Lindsey, who also thinks outside the box when it comes to meeting topics. Probably the biggest thing we have tried to do is encourage our membership to understand the internal workings of their radios - not to become electrical engineers - but to feel confident to do basic type diagnosis and repairs of those radios. Let me review what has happened just since the first of the year. Mike McCarty prepared and presented (begun in 2014) a comprehensive, yet understandable, program on how to safely repair the electronics inside the collectible old radio. His efforts are posted on our website and that information has now been seen by other radio collecting organizations and will be the basis of their own repair training programs. Two of those organizations have contacted us directly to gain permission to use his documentation. As word spreads, I expect others to follow. What an honor! Then we followed up those sessions with our annual repair session (July) where we actually take member's non-working radios and show the owner how they can go about determining what is causing their radio to not function properly and make those repairs.

The very nature of our hobby revolves around the growth of technology. Larry Lindsey, a very innovative guy, thought it would be great to have a meeting

around the possible uses of a 3D printer in making missing parts for our prized collectibles. Judging by the large attendance, I would say he made the right call. The upcoming meeting (October) will bring together two organizations with the hope of mutual benefit. A local woodturning organization will set up several working wood lathes and show our members what their members can do to assist us in making hard to obtain missing items such as radio knobs. Having dealt with a few radio knobs over the years, I, for one, will be really interested in this meeting.

While we have good attendance at meetings, we have room for many more. Some members are not taking advantage of these sessions, and I want to encourage you to attend.

One other sad note before I close for this month. I was informed earlier this week that long time member and friend, Les Sims, had passed away. His life will be memorialized at a future date, so we will keep you informed. If I can get more pertinent information regarding his passing before this newsletter goes to print, I will include it as well. Suffice to say that we all mourn with his wife, Jan, and family in his untimely passing.

— Jim

Adapting a Crosley "Buddy Boy" Electro-dynamic Speaker to a Permanent Magnet Speaker

by Rich Klarr

A while back, I decided it was time to get my Crosley 58 (Buddy Boy) working. The information and schematics in Riders were marginal at best. This lack was corrected by going to the Radio Museum website and downloading the information found there. Thanks also to John Cushing for a very good copy of a schematic from his Crosley manual.

After removing the chassis and speaker, I got the chassis bead blasted to remove surface rust. I then replaced all of the capacitors and some of the resistors. Now that it was ready to try, I plugged it in but there was no sound at all. After checking voltages, it was determined that the 10,000 ohm field coil was open. After initial checking, I discovered that a replacement speaker with a good field coil is hard to find, as the speaker has a unique mounting system.

Mike Grimes pointed out that the speaker field coil is powered across the B+ and B-, but is not part of the power supply filtering circuit. This suggested another

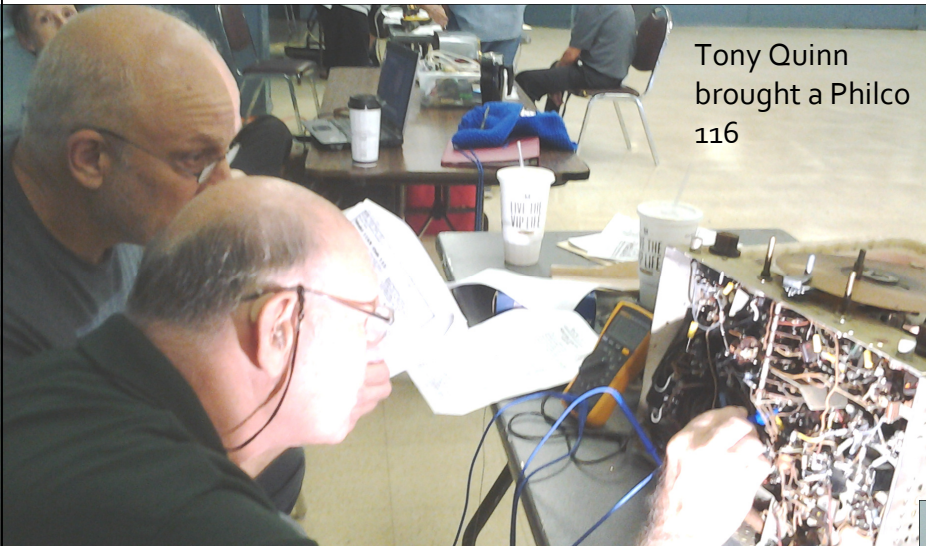
way to handle the problem. We thought it might be possible to change the electro-dynamic speaker into a permanent magnet type.

Basically, the electro-dynamic speaker works by exciting the voice coil, which generates a fluctuating magnetic field—inside the static field generated by the field coil— that acts on the speaker. We were going to try to use a permanent magnet to generate the static field instead of using a field coil.

After removing the yoke (2 screws) and pulling the field coil, I bought a couple of flat magnets from Harbor Freight (\$2 plus tax), and placed the two magnets over the exposed hole. Turned the radio on, and bingo, we had sound. After experimenting with different magnets, of different strengths, we found the stronger the magnet the higher the volume levels that could be obtained.

We put the yoke back in the radio and finally used a very strong circular magnet which was placed on the rear of the yoke. The radio still works great. This seems to be an inexpensive way to get a great old radio playing again.


July 18, 2015 Annual Repair Session



Tony Quinn brought a Philco 116

Marsha Quinn worked on nachos. 




Zenith clock radio put into working order. 




Working on a mystery set. 



Randy James working on a Halson model 43-B 



 This one just needed new tubes (the radio, that is).

Notes from the August 15, 2015 Meeting

Our club president Jim Sargent conducted our meeting, first with a report on the Antique Radio Club of Illinois Radiofest 2015, just held on the first weekend of the month. He said about 200 items were sold at their auction (which he had conducted) for a total of around 25,000 dollars. Their big 3-day event is held each August, and is often attended by enthusiasts from all over. Jim saw 8 or 9 of our members attending. There are many interesting pictures posted on their website (antique-radios.org). Jim reminded us that our next get-togethers will be, first, our swap meet on Saturday September 19, followed by a wood-turning presentation in October. Also, it's not too early to get your hotel reservations for our annual convention November 20-22. Our banquet entertainment will be provided by Joe Harrington, who will relate stories of his career as a design engineer at Disney. He will also present a technical session.



Jim turned over the session to monthly meeting planner Larry Lindsey. Larry passed out another quiz to find out who was the smartest man in the room (SMITR). It consisted of a challenge to correctly identify the electrodes of a pentode vacuum tube and relate them to the pins of the tube. He then introduced the presenter of our program, Mike Moussa

of PartSnap 3D Printing. Mike had set up a Polyjet 3D printer before our meeting, and it was busily making a part (radio control knob) during his presentation. He described the present day technology of 3D "printing" including the kinds of objects that can be created and the variety of materials that can be utilized to make them. The machine he brought builds a part by melting plastic from a spool of material similar in appearance to that used by a Weed Wacker. The machine melts the plastic into tiny beads and deposits them one layer at a time using a digitally controlled moving head. The process is called fused deposition modeling (FDM). Because the technology uses digital data to control the machine, it is necessary to build a digital model of the part to be made, and then to create a compatible data file that can be downloaded to the machine. PartSnap provides the product development and engineering design services that create the necessary data files. The cost of the first part is driven mostly by the labor to create the data file. The amount of labor depends on the complexity of the part and whether or not there are already CAD (Computer Aided Design) files for your entire part or portions of it. Many manufacturers, especially fastener suppliers, offer free CAD file downloads for their products. If you can incorporate them into your design, it can reduce costs substantially. PartSnap can also provide support in manufacturing prototype and production parts made of plastic and can "farm out" the making of metal parts.

After the 3D printing machine finished making the sample part, Mike removed it, and it was passed around for inspection by the group. As a radio control knob, it would need some sort of finish applied. For that application, it should probably be made from ABS in order to have the necessary strength and toughness. Interesting examples of objects created by 3D printing can be seen on the PartSnap website at www.partsnap.com. Their site provides a way for you to request more information or a quote.

After the main program, there were two show-and-tells. Richard Klarr and Mike Grimes showed us a trick for getting an antique radio speaker working without replacing its bad field coil. The trick relies on using a permanent magnet, such as one of the ceramic or new rare-earth types. There are some strong magnets available from Lowe's or Home Depot. The round rare-earth



type lends itself to being applied to the back of the speaker coil steel housing, while the ceramic ones can go in the space left by removing the bad coil. In any case, you can experiment to find a place that works best. Rich's radio and speaker were demonstrated, playing really well. In his particular radio, the field coil is not used as a filter choke, so there was no need to add a choke or resistor to compensate for the coil removal.

Crist Rigotti displayed his restored Philco chassis and speaker. They appear to have just come off the original Philco assembly line and were then somehow preserved for the future. Crist explained that his process involves a 100% teardown and stripping of the chassis, including all rivets, screws, sockets, transformers, etc. followed by the removal of all chassis rust and filling of pits with the type of glaze used in automobile finish work. All removed parts are polished or painted and then re-installed on the chassis. All capacitors and resistors are replaced (his Philco has the black Bakelite block-type, as well as some in metal cans). Then it is all re-wired using most of the original wires. The final result is astonishing and must be very rewarding.



Only four members aced the SMITR quiz, requiring a tie-breaking additional question. The most commonly missed was the definition of the *control grid*, which most described only as the *grid*. Larry presented previous quiz winners with certificates of their accomplishment.

Our newly created club banner was up for display in our meeting room.

Bill McKeown



The Case of the Wayward Wales by Mike McCarty

At the 2014 VRPS Christmas party silent auction, I purchased a small Japanese AC/DC tube radio branded "Wales". It is a pretty little aqua colored radio, and fits right into my modest collection, augmenting the white and grey ones I own. For some reason, I find these cute little radios appealing. Since I've worked on these radios before, I figured that it would have no paper capacitors in it, and only need filter capacitor reforming, along with replacement of the line filter capacitor (which needs to be X2 rated). I was soon to discover otherwise.

I measured the line cord prong to prong resistance to be infinite with the radio off, and 162 ohms with the radio turned on, which is ballpark good. I tuned the radio to the bottom of the dial to get the vanes of the tuning capacitor safely meshed, and removed the chassis from the case. Measuring the resistance from B+ to ground, I looked for 50K ohms or more, which indicates that the filter capacitors are sufficiently formed not to destroy the rectifier. The radio passed this test, so I decided to try to reform the filter capacitors in situ, something I would not do with an unfamiliar radio.

I put a 40 W lamp into my dim bulb apparatus, which I keep permanently connected to my isolation transformer and Variac. I verified that

the Variac was OFF and set to 0 V, switched the radio ON, and plugged it into my dim bulb. I switched the dim bulb to LIMIT and turned it ON. I switched the Variac to ON and ramped the voltage up over a period of about thirty seconds, and noted normal behavior with the dim bulb, i.e. it reached a maximum of slightly yellowish brilliance, dimmed, then back up to yellowish. After several moments, I could hear a loudish hum, which gradually reduced as the filter capacitors began to reform. So far so good, another success story in the making, I thought, not knowing what was to come.

I turned off my Variac, replaced the lamp in the dim bulb with a 100 W lamp and turned it back on, noting the normal barely visible dim red glow. I tuned to a station on the low end of the band, and left the radio playing for about three hours, to let the filter capacitors finish reforming. This is a cheap and dirty trick for reforming filter capacitors which are in decent shape. There is a slight risk that the reservoir (the capacitor connected directly to the rectifier) capacitor will completely short, and destroy the rectifier, a 35W4 in this case.

After attending to a few other items on the work bench while listening to the little radio play, I decided it was time to give it some more attention. The hum had reduced to normal levels, and it was merrily playing away. I fished around in my parts bins, and got out an X2 rated capacitor to replace the line filter. I turned off the Variac and unplugged the radio, and after verifying that the filter capacitors were discharged, it took me just a moment to replace the line filter capacitor. I plugged the radio back into the dim bulb, and turned it on. At first, all seemed normal, but when I tuned around the dial, I noted some unusual behavior.

Reception was strong and clear on the lower third and upper third of the band, but there was absolutely no reception whatever in the middle third of the band. Lack of reception on the lower half of the AM band but good reception on the upper half is a not uncommon symptom, the cause being a weak converter tube. The oscillator section is usually made so that feedback is

provided by a smallish (50-100 pF) capacitor. Capacitors pass more current at high frequencies, so a weak tube which is just barely able to oscillate may work only at the higher frequencies where it gets more feedback than at the lower ones[*]. That wasn't the case here, however. The most likely cause was the dreaded Bent Vanes malady in the tuning capacitor.

After spending a few moments futilely trying to see which vane might be bent and shorting, I turned off and unplugged the radio. After verifying that the filter capacitors were discharged, I set my DVM to buzzbox mode, where it beeps when the leads are shorted together. I unsoldered the wires from the tuning capacitor, and quickly found that the antenna section of the tuning capacitor was shorting, but the oscillator section was not. Hoping against hope, I unmeshed the vanes of the tuning capacitor, and used a basting brush to brush away from the vanes any conductive debris which might be causing the shorts. No luck, the capacitor was still shorting. Using an old trick for locating shorting vanes, I cut a small slip from a note card and tried inserting it between the vanes to locate the short, but it was too thick. I tried again with a slip of paper, but although I could feel the paper successfully separating shorted vanes, the capacitor was still shorted. There must be multiple shorting vanes. It was time to get out the big guns.

I fired up my vintage Heathkit T-4 signal tracer, and set it to the Noise function. In this mode, the signal tracer puts about 80 VDC through a 68 K current limiting resistor on the probe. The probe is capacitively coupled to the amplifier in the tracer, so even weak momentary shorts cause loud pops and scratches in the tracer's speaker. I turned down the lights, connected the tracer to the antenna section, and rotated the shaft. I saw numerous sparks on multiple vanes, but it was impossible to see just where the shorts were with the capacitor on the chassis. With a sigh, I removed the tuning capacitor from the chassis.

Starting with the vanes fully unmeshed, I slowly turned the tuning shaft and watched closely with the lights dimmed. I located five bent vanes which were shorting. I carefully noted where the first short took place on each vane, and it seemed that they all began to short at about the same place. Sighting carefully along the vanes, I could see the whole movable section was slightly bent. By hand I pushed on the end insulator, and carefully straightened the rotating vanes as best as possible by eye. I then rechecked, and unsurprisingly there were still shorts.

Starting with one vane, I noted the place where the short first took place, and carefully straightened that section of the vane. The short simply moved farther along, so I repeated the procedure until no further shorts took place on that vane. I then moved to another vane, and after repeating the procedure four more times, no more shorts were taking place.

I reinstalled the tuning capacitor on the chassis, and the radio played well across the band.

Case Closed.

[*] Such tubes should not be discarded. They may work satisfactorily in another radio.



Kasey and Company by Kasperski



Image used under license agreement with cartoonstock.com



SOUNDWAVES IS PUBLISHED QUARTERLY BY THE VINTAGE RADIO AND PHONOGRAPH SOCIETY, INC.

PRESIDENT—JIM SARGENT (972) 742-8085 BSARGENT@SWBELL.NET

VICE PRESIDENT—RANDY JAMES (817) 292-7435 RANDY-JEANNINE@SBCGLOBAL.NET

NEWSLETTER EDITOR—MARY ANN CARUTH MCARUTH@ATT.NET

WEBMASTER—MIKE GRIMES K5MLG@VERIZON.NET

VRPS WEBSITE WWW.VRPS.ORG.

BOARD OF DIRECTORS

MARY ANN CARUTH

CLEO CHERRYHOLMES

RONALD DANIEL

BLAKE DIETZE

MIKE GRIMES

RANDY JAMES

ED JANSSEN

BILL JEWELL

LARRY LINDSEY

MIKE McCARTY

BILL MCKEOWN

GEORGE POTTER

JIM SARGENT

MONTHLY MEETING PROGRAMS 2015

Note: Programs will be held at various locations in Irving, Texas. Make note of the location as they may change from time to time. Senter East, 228 Chamberlain St.; or Garden and Arts, 906 S Senter Rd. Maps are located on the WEB site, EVENTS page. Programs start at 2pm, unless otherwise noted. Call us on the cell tellie if you get lost: 972-898-7251 or 972-742-8085.

- SEPTEMBER 19, 2015 — Senter East Building parking lot (note: early start 8am over at noon) — Fall Tail-gate trade day. Bring items to swap, trade or sell.
- OCTOBER 17, 2015 — Garden & Arts Building 2pm — Wood turners of North Texas will bring two lathes and demonstrate turning techniques. Bring items such as legs, knobs or other objects to be reproduced in wood.
- NOVEMBER 20-22 2015 — Annual Convention; Mesquite, TX
- DECEMBER 5, 2015 — Garden & Arts Building, 6pm to 11pm — Annual Christmas Party — Bring your favorite side dish.

Programs are subject to change, contingent on scheduling conflicts. If programs do not fit your needs and you want something different, let us know. We need volunteers to organize other programs, so consider presenting a program yourself. Call anytime or send an email: Larry Lindsey email: pipilindsey@tx.rr.com telephone: 817-312-8761.